

**The Claimed Invention Is:**

1. An apparatus for measuring the differential pressure of fluid in filter, the apparatus comprising:
  - (a) a housing defining a pressure chamber; and
  - (b) a differential pressure gauge dividing the pressure chamber into first and second chambers, the differential pressure gauge arranged to measure a differential pressure between the first chamber and the second chamber, the differential pressure gauge having an output.
2. The apparatus of claim 1 wherein:
  - (a) the differential pressure gauge includes a piston positioned within the pressure chamber; and
  - (b) the piston moves within the pressure chamber when the pressure differential changes
3. The apparatus of claim 2 wherein:
  - (a) the piston includes a magnet, the magnet emitting a magnet field; and
  - (b) the differential pressure gauge includes a hall-effect sensor position to detect the magnet field emitted from the magnet.
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a1 4. The apparatus of claim a wherein the hall-effect sensor is isolated from the first and second chambers.
5. The apparatus of claim 3 wherein the variable output comprises:
  - (a) a first signal correlating to a first differential pressure; and
  - (b) a second signal correlating to a second differential pressure.
6. The apparatus of claim 3 wherein:
  - (a) the variable output includes a variable signal; and
  - (b) the value of the signal correlates to the value of the differential pressure between the first and second chambers.

7. The apparatus of claim 3 wherein the variable output includes a signal.
8. The apparatus of claim 1 further comprising a filter in fluid communication with the pressure chamber.
9. The apparatus of claim 8 wherein the filter is a liquid filter.
10. An apparatus for measuring the differential pressure of fluid in filter, the apparatus comprising:
  - (a) a housing defining a pressure chamber;
  - (b) a gauge member dividing the chamber into first and second chambers; and
  - (c) a sensor having an electrical output, the sensor arranged to detect the gauge member and output an electrical signal in response to detection of the gauge member.
11. The apparatus of claim 10 wherein the sensor is a hall-effect sensor.
12. The apparatus of claim 11 wherein the hall-effect sensor is programmable.
13. The apparatus of claim 11 wherein the sensor is isolated from the first and second chambers.
14. The apparatus of claim 11 wherein:
  - (a) the gauge member measures a differential pressure between the first and second chambers; and
  - (b) the hall-effect sensor outputs:
    - (i) a first signal correlating to a first differential pressure; and
    - (ii) a second signal correlating to a second differential pressure.

15. The apparatus of claim 14 wherein:

- (a) the gauge member includes a magnet; and
- (b) the magnet moves when the pressure differential changes and the hall-effect sensor outputs:
  - (i) the first signal when the magnet is in a first position; and
  - (ii) the second signal when the magnet is in a second position.

16. The apparatus of claim 11 wherein:

- (a) the gauge member measures a differential pressure between the first and second chambers; and
- (b) the hall-effect sensor outputs a variable signal, a level of the variable signal correlating to the value of the differential pressure between the first and second chambers.

17. The apparatus of claim 16 wherein:

- (a) the gauge member includes a magnet and the magnet moves when the pressure differential changes; and
- (b) the level of the variable signal correlating to the position of the magnet.

18. The apparatus of claim 11 wherein:

- (a) the gauge member measures a differential pressure between the first and second chambers; and
- (b) the hall-effect sensor outputs a signal.

19. The apparatus of claim 11 further comprising a filter in fluid communication with the pressure chamber.

20. The apparatus of claim 19 wherein the filter is a liquid filter.

21. A method of measuring differential pressure in a filter head, the method comprising:

- (a) inputting fluid into first and second chambers;
- (b) creating the differential fluid pressure between the fluid in the first chamber and fluid in the second chamber; and
- (c) outputting a variable output in response to creation of the differential fluid pressure, the variable output indicative of at least two predetermined differential pressures.

22. The method of claim 21 wherein:

- (a) the filter head includes a magnet and a hall-effect sensor; and
- (b) the variable output is a signal generated by the hall-effect sensor in response to detecting a magnetic field from the magnet.

23. The method of claim 22 wherein:

- (a) generating the variable output further comprises generating a variable signal; and
- (b) the level of the variable signal correlates to the differential pressure.

24. The method of claim 21 wherein the fluid is a liquid.

25. The method of claim 21 wherein the filter head defines a fluid chamber and a differential pressure gauge engages the fluid chamber, the method further comprising:

- (a) removing the differential pressure gauge from the fluid chamber; and
- (b) positioning a new differential pressure gauge in fluid chamber.